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SA

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 09/305,240 | 05/04/99 | SHIM | E 5484-48 |

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|----------|--------------|
| EXAMINER | |
| NADAV O | |
| ART UNIT | PAPER NUMBER |

2811
DATE MAILED: 08/31/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------------|--------------------------------------|------------------------------------|
| Office Action Summary | Application No. 09/305,240 | Applicant(s) Shim et al. |
| | Examiner ORI NADAV | Group Art Unit 2811 |

Responsive to communication(s) filed on Jul 21, 1900.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-7 and 9 is/are pending in the application.

Of the above, claim(s) 1-4 is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 5-7 and 9 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDougall et al. (3,895,966) in view of Admitted Prior Art (APA).

MacDougall et al. teach in figure 1 a transistor for use as a pull up transistor with a Vdd terminal and an I/O pad of a semiconductor device comprising: a semiconductor substrate 10 of a first conductivity type, source and drain regions 11, 12 of a second conductivity type formed in the substrate and defining a channel region therebetween, an impurity implantation region of impurities of a second conductivity type in a first sector of the channel region (column 2, lines 60-65), the first sector does not reach either one of the source and drain regions and is separated therefrom by equal distances, wherein the channel region exclusive of the first sector has a uniform doping concentration of the first conductivity type, a gate insulating layer 15 on the substrate and over at least a portion of the impurity implantation region and over at least a portion of an area adjacent the impurity implantation region, and a gate 14 on the gate

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insulating layer over at least a portion of the first sector and of a region adjacent to the first sector, wherein the first sector has a narrower line width than a line width of the gate and the first portion is in a predetermined ratio with the area adjacent to the first portion.

Although MacDougall et al. do not explicitly state that the first sector does not reach either one of the source and drain regions and has a narrower line width than a line width of the gate, it is clear from figure 1 that the first sector does not reach either one of the source and drain regions and the right side of the first sector is horizontally shorter than the length of the gate.

MacDougall et al. do not teach using the transistor as a pull up transistor in which one of the source and drain regions being coupled with the I/O pad and the other one being coupled with the Vdd terminal.

APA teaches in figure 1 a pull up transistor, wherein one of the source and drain regions being coupled with the I/O pad and the other one being coupled with the Vdd terminal.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use MacDougall's transistor as a pull up transistor, in which one of the source and drain regions being coupled with the I/O pad and the other one being coupled with the Vdd terminal, because it is conventional to connect one of the source and drain regions being coupled with the I/O pad and the other one being coupled with

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the Vdd terminal in a pull up transistor in order to operate the transistor in its intended use as an enhancement mode transistor.

Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-C are cited as being related to depletion mode transistors having impurity implantation regions.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is (703) 308-8138. The Examiner is in the Office generally between the hours of 7 AM to 3 PM (Eastern Standard Time) Monday through Friday.

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Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

Ori Nadav, Ph.D.

August 18, 2000

STEVEN H. LOKE
PRIMARY EXAMINER
GROUP 2800

